

# Notice of Allowability

Application No.

10/522,851

Applicant(s)

LANGE, DANIEL H.

Examiner

Aravind K. Moorthy

Art Unit

2131

## -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 11/1/06.
2. ☒ The allowed claim(s) is/are 1, 2 and 4-28.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☒ All b) ☐ Some\* c) ☐ None of the:
    1. ☒ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

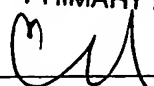
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  5. ☒ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
    - (a) ☒ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
      - 1) ☒ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

### Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date \_\_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☒ Interview Summary (PTO-413), Paper No./Mail Date \_\_\_\_\_
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_

CHRISTOPHER REVAK  
PRIMARY EXAMINER



### **DETAILED ACTION**

1. This is in response to the interview conducted on 2 November 2006.
2. Claims 1, 2 and 4-28 are pending in the application.
3. Claims 1, 2 and 4-28 have been allowed.
4. Claim 3 has been cancelled through examiner's amendment.

### **EXAMINER'S AMENDMENT**

5. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Brent Sokol on 2 November 2006.

The application has been amended as follows:

Claim 1 (amended) A method for identifying an individual, comprising:

a preliminary step of obtaining representations of the heartbeat patterns of a plurality of individuals, and deriving and storing the representation of the common features of the heartbeat patterns of a plurality of individuals from at least a selected number of representations;

producing and storing a first biometric signature that identifies a specific individual by forming the difference between a representation of the heartbeat pattern of the specific individual and the stored representation of common features of heartbeat patterns of a plurality of individuals;

after said producing step, obtaining a representation of the heartbeat pattern of a selected individual and producing a second biometric signature by forming the difference between the heartbeat pattern of the selected individual and the stored representation of the common features of the heartbeat patterns of the plurality of individuals; and

comparing said second biometric signature with the first biometric signature to determine whether the selected individual is the specific individual.

Claim 3 (cancelled).

Claim 4 (amended) The method of claim 1 wherein said step of deriving and storing the representation of the common features of the heartbeat patterns of a plurality of individuals comprises deriving and storing a plurality of representations of the common features of the heartbeat patterns each from a respectively different group of the plurality of individuals.

Claim 5 (amended) The method of claim 1, wherein said step of deriving and storing the representation of the common features of the heartbeat patterns of a plurality of individuals comprises producing an average of the heartbeat patterns of the plurality of individuals.

Claim 6 (amended) The method of claim 1, wherein said step of deriving and storing the representation of the common features of the heartbeat patterns of a plurality of individuals comprises performing one of principal component analysis or wavelet decomposition.

*Allowable Subject Matter*

6. Claims 1, 2 and 4-28 are allowed.

The following is an examiner's statement of reasons for allowance:

The current application is directed towards acquisition, processing, and analysis of electro-biometric signals. The current application relates to systems and methods for electro-biometric identification and verification of a person's identity. The current application provides a system and method for electro-biometric identification and verification of a person's identity by bioelectric signal acquisition, processing, and analysis. The method of the current application is based on acquisition of bioelectric signals, which are transformed into unique electro-biometric signatures. The uniqueness of the electro-biometric signatures makes the system very difficult to deceive, and its inherent robustness makes it ideal for local as well as for remote and on-line applications. The current application is based on electro-cardiologic signal discrimination. Analysis is carried out synchronously with the heartbeat, eliminating features common to the general population and thus enhancing subject-specific features that constitute an electro-biometric, or biometric, signature, normally undetectable in raw electro-cardiologic signals.

The closest prior art to the current application was Bennett US 2003/0128867 A1 (hereinafter Bennett). Bennett is directed towards obtaining biometric identification to activate a device or authenticate a participant in a transaction using histological and/or physiological traits. More particularly, Bennett relates to systems and methods for employing histological and physiological biometric markers that are substantially unique to an individual in order to permit an individual to activate a device, participate in a transaction, or identify himself or herself, wherein at least one biometric marker is obtained by one or more electrical contacts on the

surface of the skin. Bennett takes place in association with a mechanism that is used for identification and authentication using physiological and/or histological biometric markers. In at least one implementation, the biometric markers are substantially unique to each person and are not merely measurements of superficial anatomical structure or behavioral traits. Instead, the markers utilize or alternatively include measurements of physiological traits of one or more systems of the human body and/or are histological traits associated with tissues of the human body.

However, Bennett does not disclose all the elements of the claimed invention. As to independent claim 1, Bennett merely suggest to “measure at least one trait of an internal physiological process” such as a heartbeat waveform. There is no suggestion of “producing and storing a first biometric signature that identifies a specific individual by forming the difference between a representation of the heartbeat pattern of the specific individual and a stored representation of common features of heartbeat patterns of a plurality of individuals”. Likewise, Bennett does not describe or suggest “after the producing step, obtaining a representation of the heartbeat pattern of a selected individual and producing a second biometric signature by forming the difference between the heartbeat pattern of the selected individual and the stored representation of the common features of the heartbeat patterns of the plurality of individuals”. Bennett does not describe or suggest “comparing the second biometric signature with the first biometric signature to determine whether the selected individual is the specific individual”. Bennett suggests tracking variances in an “authorized user’s” “authenticating waveform” over time and determining whether a received signal is statistically identical to an authorized user’s authenticating signal.

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Any claims not directly addressed are allowed on their virtue of dependency.


Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

***Conclusion***

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Aravind K. Moorthy whose telephone number is 571-272-3793. The examiner can normally be reached on Monday-Friday, 8:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ayaz R. Sheikh can be reached on 571-272-3795. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Aravind K Moorthy   
November 8, 2006

**CHRISTOPHER REVAK  
PRIMARY EXAMINER**

